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NASA LANGLEY TECHNOLOGY REDUCES SOME SMOKESTACK EMISSIONS

Thanks to NASA, a new method for reducing smokestack emissions of toxic formaldehyde and carbon monoxide may soon be in use throughout industry.

Created for satellite lasers to measure the chemical makeup of the Earth's atmosphere, the smokestack application of Low-Temperature Oxidation Catalysts (LTOC) comes from a collection of technologies that enables the destruction of pollutant gasses, such as carbon monoxide and hydrocarbons, as well as some nitrogen oxides.

Developed at NASA's Langley Research Center, LTOC technology is expected to reduce formaldehyde and carbon monoxide concentrations in smokestack emissions by approximately 85 to 95 percent.

Current pollution remediation technologies are typically very expensive to implement and maintain according to Dr. Jeff Jordan, the LTOC team lead at Langley. "The catalytic-based formaldehyde remediation system will be relatively inexpensive to implement and maintain within continuously operating facilities," said Jordan. "It will reduce the time and cost associated with industrial compliance with current and future Environmental Protection Agency pollution standards."

NASA originally called on Langley researchers to develop a technology for space-based carbon-dioxide laser systems. To maintain carbon dioxide lasers in space for atmospheric research, NASA needed a catalyst system that would affect the oxidation of carbon monoxide, a by-product of carbon-dioxide laser operation, under the cold vacuum of space.

Although the need for a carbon dioxide laser in space gave way to solid-state lasers, the NASA research team developed an oxidation technology that would work at very low temperatures. LTOC technologies were then adapted for higher temperature applications like smokestack emissions and the internal combustion engine.

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An automotive catalytic converter using LTOC technology has met initial EPA requirements and California emission standards for the automotive after-market. The LTOC catalytic converter does not require a warm-up period to function and uses significantly less precious metals than current commercial products, which reduces the overall cost of the converter.

"Adapting the LTOC technology for pollution remediation applications has been a very exciting and rewarding endeavor that will contribute significantly to improving air quality on a global basis," said Jordan. "It's a goal that is integral to the mission of the NASA agency."

Through NASA's technology commercialization program, Automated Controls Technologies, Inc. (A.C.T.) of Fairmont, W. Va., is the exclusive licensee for the NASA LTOC smokestack application. A.C.T. officials expect to have products on the market in early 2004.

NASA is still accepting license inquiries for other LTOC applications.

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